UNECE - SC.3

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The project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement N°815012.

CONSORTIUM

ITALY
Ciaotech S.r.l. – PNO Group
www.pnoconsultants.com/it

NORWAY
Kongsberg Maritime CM AS
www.kongsberg.com/maritime

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www.kongsberg.com

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Kongsberg Norcontrol AS
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Sintef Ocean AS
www.sintef.no/en/ocean

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www.strath.ac.uk

NORWAY
Eidsvaag AS
www.eidsvaag.no

BELGIUM
Blue Line Logistics NV
www.bluelinelogistics.eu

FRANCE
Bureau Veritas
group.bureauveritas.com

BELGIUM
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AUTOSHIP

Autonomous Shipping Initiative for European Waters

THE PROJECT

AUTOSHIP - Autonomous Shipping Initiative for European Waters - aims at speeding-up the transition towards a next generation of autonomous ships in EU.

The project will build and operate 2 different autonomous vessels, demonstrating their operative capabilities in Short Sea Shipping and Inland Water Ways scenarios, with a focus on goods mobility.

The new autonomous ships will help ship operators and owners to improve the economy of scale of their investments, to effectively gain competitiveness and renew their fleets, making them more competitive to replace road transport: they will reduce costs and improve the overall efficiency on-board (less fuel and logistic procedures) based on an advanced technology for monitoring, data fusion and communication with a more evolved network. Interoperability and IoT will increase safety, security and speed of every operation.

Operations in a shorter timeframe than expected: this will allow the first commercial applications of the technology behind the next generation of autonomous ships in a 5-years timeframe.

OBJECTIVES

In AUTOSHIP a joint effort of industrial partners and multi-domain experts, will result in the realisation and demonstration of two vessels and their complete use-cases characterisation during the time frame of the project. To achieve this ambitious target, the AUTOSHIP project will last 42 months addressing 9 Specific Objectives (SO) answering all the challenges of the call.

SO1 | Building and Operating Autonomous Ship at TRL 7
The main target of the project is to develop and demonstrate to TRL 7 or above two fully autonomous vessels for Short Sea Shipping and Inland Water Ways services respectively in real environment, an important step forward towards autonomous intercontinental shipping.

SO2 | Demonstrating Key Enabling Technologies
For both use cases, these will be the first ones out of a series of more vessels to be delivered shortly after the project ends and will be used to demonstrate a complete set of key-enabling technologies (KET) for autonomous operations to achieve level 5 (AL5 in Society of Automotive Engineers). The developed solutions will bring autoOnomous vessels beyond the current state of the art in terms of Situational awareness and Collision avoidance systems, Remote and Autonomous Navigation, Docking, Ship-shore data communications integration, Cybersecurity, Condition Monitoring and smart maintenance strategies and Technology for interacting with shore-based service providers and port/coastal authorities.

SO3 | Develop Standard, tools and methods
The demonstrators will aim at verifying on-board safety, security and reliability by testing specific failure scenarios and considering possible malevolent attacks. The project will develop own technology and IPR, to be brought on the market within 5 years, while defining common development of standards, tools and methodologies for autonomous systems for the benefit of future developers, researchers and practitioners. This will contribute to the acceleration of development within the industry and research community.

SO4 | Digital Upgrade
On top of on-board and on-shore KETs, advanced simulators and digital tools will be upgraded to better support testing, commissioning, training and operations. They will be built on important assets from previous research, lab experiments and ship on-board testing.

SO5 | Skilled and Updated Operators
Based on newly identified crew and operators' skills requirements, best practices, methodologies, tools and training protocols will be defined.

SO6 | Regulatory and socio-economic Framework
A comprehensive impact analysis will link the KETs and the new vessels capabilities to their interaction with the operations and logistics value-chain. Their effects on operability, reliability and safety will be related to the complex scenarios addressing social and economic dimensions such as jobs, change management and logistics, (cyber)security, liability, international regulation and environment.

SO7 | Business case and models
Thoroughly investigating this socio-economic framework for autonomous ships adoption and acceptance, the AUTOSHIP project will eventually propose a comprehensive business case analysis with a focus on the two early-adopters use cases and how this knowledge can be transferred to other maritime transport segments.

SO8 | Roadmap to Intercontinental R&A navigation
prepare a roadmap to generalise and apply results to other use-cases in view of scaling-up services for international and intercontinental navigation.

SO9 | Communication acceptance and dissemination
to achieve the above objectives, the involvement of the necessary stakeholders will be assured, both with one-to-one interaction and by disseminating the results in the marine/maritime industry and forums.

Test area

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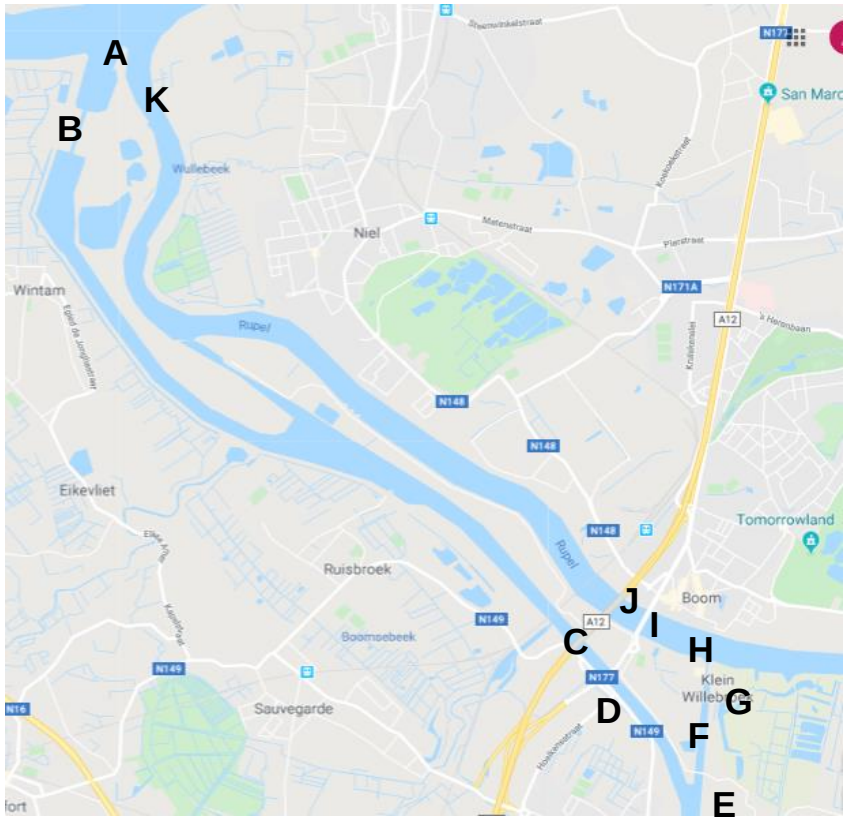
Test area



A: River Scheldt

Sea Channel

B: Sea lock: Nieuwe zeesluis Wintam

C: Nijverheidsbrug - Automated (train bridge, not DVW)

D: Boulevardbrug - Automated

E: Victor Dumonbrug - Automated

F: harbour for pleasure vessels

G: lock: Sluis Klein-Willebroek

Rupel river

H: Ferry B21: Klein-Willebroek – Boom (pedestrians, bikes)

I: Baanbrug Boom (Rupelbrug) - Automated

J: Spoorbrug Boom – Automated (train bridge, not DVW)

K: Veer B20: Ferry Schelle-Wintam (pedestrians, bikes)

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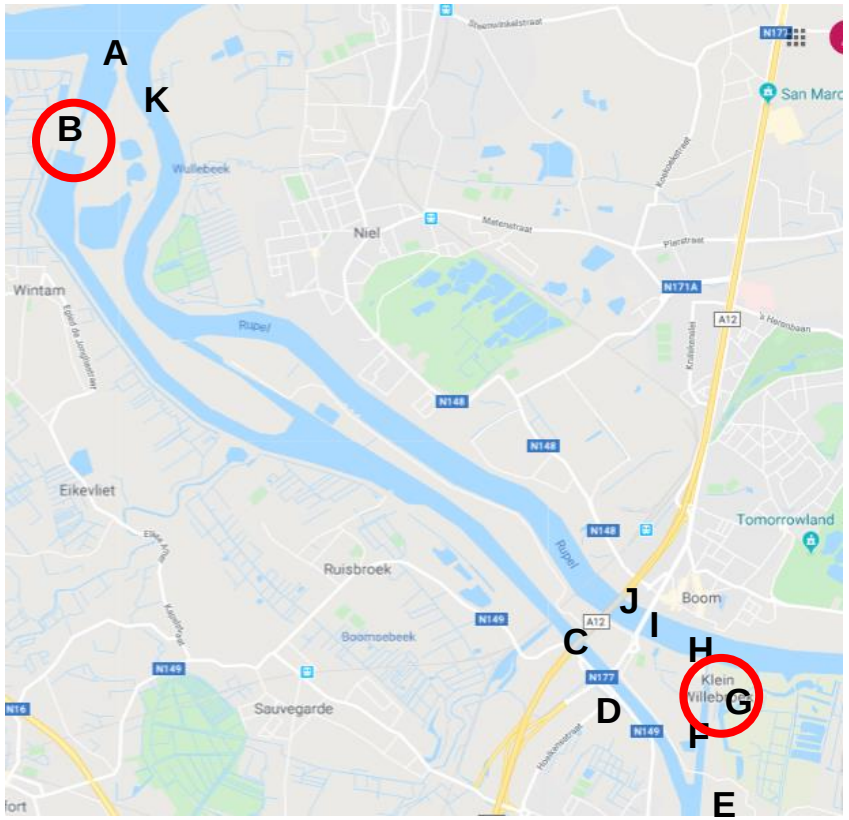
Test area



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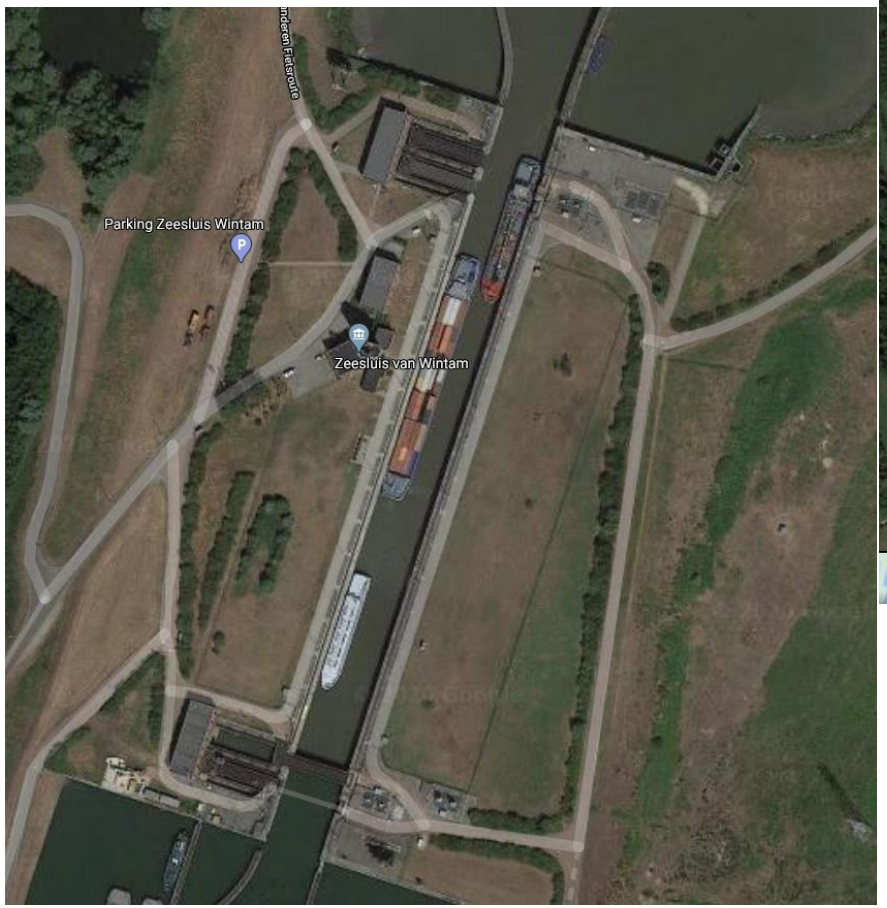
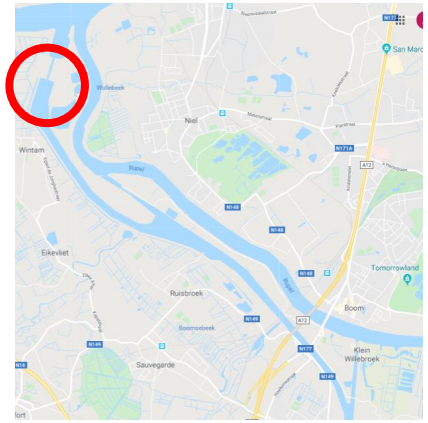
Wintam





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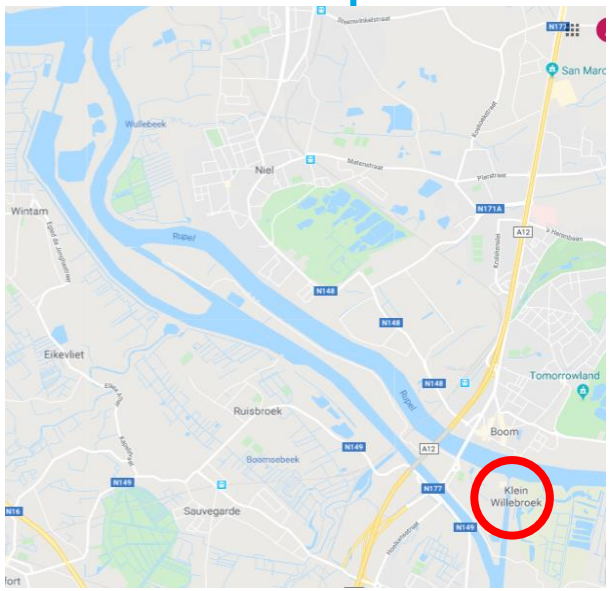
Willebroek



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26-27 November 2020 - https://smartshipping-hackathon.com/

Questionnaire

https://www.menti.com/5xhea7f2yd/0

The aim of this survey is to capture the understanding and positions of all the involved stakeholders regarding the autonomous shipping. This survey is structured into 9 sets of question and should not take more than 10 minutes to complete.

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